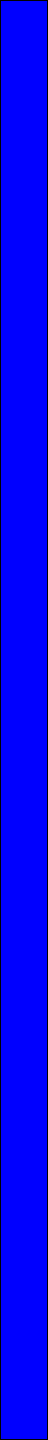


# Overcoming Barriers To School Reform

## One Classroom at a Time

Linnea Koons Mathews     July 21, 2009

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Ever since  
there has been school -  
there has been  
school reform

# 3 Functions of Public Education

1. Maintain a Democratic Society
2. Provide Equity of Opportunity and Access to Education
3. Ensure Equity of Influence of Outcomes

# 1. Maintain A Democratic Society

- 1779: Thomas Jefferson proposed a system of education for all supported by taxes.
  - An educated citizenry is necessary to balance the actions of the government.
  - “Whenever things get so far wrong as to attract their notice, they may be relied on to set them right.”

## 2. Provide Equity of Opportunity and Access

- 1785 Continental Congress passed a law reserving a portion of each township for a local school
- 1954: Brown vs. Board of Education Supreme Court ruling
- 1958: National Defense Education Act passed

### 3. Ensure Equity Of Influence

- 1964: Civil Rights Act
  - *banned discrimination on the basis of race in all federally funded programs.*
- 1965: Elementary and Secondary Education Act passed.
  - *Renewed in 1994 with requirement for standards and assessments*
- 2001: No Child Left Behind Act passed.

### 3 Characteristics of Successful Reform

- Can be used in more than one way
- Simply put into place
- Cannot be turned against the student.

# Historical Examples of Successful School Reform

- Ubiquitous blackboards
  - *Concepts and wording could be captured by the teacher for all students to see*
- Central heating and indoor plumbing
- Hot lunch and breakfast programs
  - *Students have to be at school if they are to learn. Food will get them there.*



# External Road Blocks to Reform

- Financial and social trends
  - *State of the economy*
    - *Resulting in a shift to more standardized testing*
- Disconnection within reform sponsors
  - *between what is **said** and what is **done** by the same group*
    - *NCLB*
    - *21 Century Skills*
    - *NSTA*

# Institutional Road Blocks to Reform

- Parents' resistance to change
  - *These adults are successful, remember their educational experiences, and want the same for their children. The system works for them.*
- Standardized testing in linguistic mode
  - *Favoring a particular style of learning, 1 of 7 (at least)*
  - *Tests vocabulary and recall*

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Teachers can not control the external  
and institutional trends.

They can control what  
happens in their classroom.

# Successful Reform Happens One Classroom at a Time

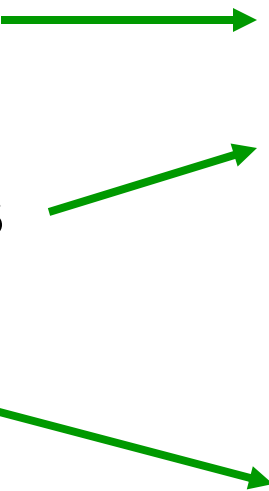
- “The improvements are devised in the classroom in the first place.”  
– *James W. Stigler & James Hiebert*
- “Once you close that door, what you do in your classroom is up to you.”  
– *Anne Davies*

This is what I want to do when the  
classroom door closes

I want to  
change the  
nature of  
learning in  
the Biology  
lab.



# Changing the nature of learning in the Biology lab

- Traditional lab activities
  - Isolated lessons
  - Looking for predetermined answers
- 
- True inquiry
  - Student-designed experiments, analyzed, revised and repeated
  - Present learning to public

# From → Traditional lab activities

- Follow directions at their own rate.
- Filling in blanks on the worksheet.
- The questions have right or wrong answers.
- *Remembering, understanding*



# To True inquiry

- Student-designed experiments, analyzed, revised and repeated
- Capture evidence of learning with MLTI technology
- Present learning to public
- *Analyzing, evaluating, creating*



# Slug Training

Sweeeeet!



# Sustaining the Reform

- Parents' resistance to change
  - *How can I assure them that their child is learning science as well as they [remember] they learned science?*

# My Ideas include:

- Collaboration via various technologies
  - *wiki space or blog*
  - *Moodle*
  - *The Big Other*
- Capture drafts with multimedia
  - *allowing for students' creativity and exuberance*
- Present learnings and findings
  - *to school board and parents*

What are your ideas?  
How can I sustain parents' support  
for true inquiry?

I included your ideas and questions in  
the following slides. I've also included  
them on my wiki page, so that you can  
continue the dialogue.

# Bibliography

- Davies, A. (March 7, 2001). A personal communication
- Global Ministries (n.d.). *A brief history of American public education*. Retrieved from <http://new.gbgm-umc.org/missionstudies/publiceducation/timeline/index.cfm?print>
- Jewett, T. (1996, Winter). *Jefferson, education and the franchise*. Retrieved from <http://www.earlyamerica.com/review/winter96/jefferson.html>
- Johnson, C. (2007). Effective science teaching, professional development and No Child Left Behind: Barriers, dilemmas, and reality. *Journal of Science Teacher Education*, 18, pg.133-136. Retrieved from Education FullText (10.1007/s10972-006-9037-0).
- Partnership for 21<sup>st</sup> Century skills map (2008, November). Retrieved from <http://21stcenturyskills.org>
- Sass, E. (June 22, 2009). *American educational history: A hypertext timeline*. Retrieved from <http://www.cloudnet.com/~edrbsass/educationhistorytimeline.html>
- Stigler, J. & J. Hiebert. (1999). *The teaching gap*. New York: The Free Press
- Tyack, D. & L. Cuban. (1995) *Tinkering toward Utopia*. Cambridge: Harvard University Press
- Photo credits – Linnea Koons Mathews

# Questions from Presentation

- Does this information matter if it went on the standardized test? How does learning help them with SATs?
  - This is the question that I need to be able to address. The general public really see the SATs as the ultimate measure of learning.
- What does it mean, "simply put into place"? Without much lead up/background prep? (Seems like that would help...) –
  - Yes it means without much lead up or fanfare. I thought that preparation would lay the groundwork and lead to more success in reform, but Tyack and Cuban claim in Tinkering Toward Utopia that keeping reform under the radar results in more widespread success. It may be due to the formation of lobbies for or against the reform.
- Where did the three characteristics of successful form come from.
  - These come from the book Tinkering Toward Utopia, by Larry Cuban and David Tyack
- How well are students attuned to the reason that you are doing things?
  - This is a really good question. I cover the skills to be gained in the course syllabus; I don't think anybody really ever refers back to it. Somehow I have to find a way to keep the reasons in front of them.

# Questions from Presentation, cont.

- Parents concerned-have they voiced their concerns? How do you know they are opposed?
  - They tell me that this isn't the way that they learned science. They also will ask me why I don't do things the same as the other bio teacher.
- Slugs - MLRs? Skills? Can you do both traditional and "project"?
  - There is always room for the lower stakes, traditional activity.
- Why have them show their knowledge?
  - I don't have an answer to this question and I really need to develop one.
- What about compulsory education laws as a successful reform?
  - I actually thought a lot about including them. It just came down to a decision about visual impact and the number of items on the PowerPoint slide.
- Do we pay enough attention?
  - Can you develop this question little further? I think what you're asking is important, I just don't understand quite what it is that you're asking. Pay attention to what?

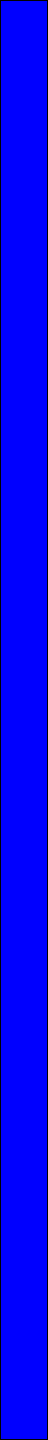
# Ideas from cohort members for new ways to document learning

- The child understands the family dynamics and can be the strongest advocate for you.
- Have kids generate and act as an advocate for your unit to their parents in the home.
  - Students are your liaison between school and parents.
- Have a parent do the experiment
- Relate to 21<sup>st</sup>-century skills
- Explain to parents the skills that the students are learning:
  - problem solving, build patience, scientific process, technology skills, communication skills, critical thinkers.
- This makes kids successful in life because:
  - first-hand experience in problem solving; teamwork; in-depth - relates more to science; creating thinkers... you don't know what they will need to know-so prepare them for anything
- Key points-build on and share this with parents
  - sharing thinking with others; working through complex situations; working with ill-defined outcomes



# More ideas from cohort members for new ways to document learning

- Products include:
  - Demonstrations
  - storyboards
  - news broadcast
  - Radio /TD - Bill Nye
  - puppetshow - from slugs perspective.
  - podcast
  - Oral report-podcast?
  - Graphic novel-maybe, drawings
  - document through photos
  - class wiki including a thread/conversation about results.
  - music video
  - Video-I movie
  - brochure
  - podcast
  - photo essay
  - wiki- create own
  - Portfolio exhibits
  - narrative story
  - daily log: Journal
  - poem
  - writing a news article geared toward general public
  - story from the slug's perspective

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Thank you so much for your ideas  
and questions!

Please go to my wiki to continue  
the dialogue.

# Slug Training

- Given a task
  - What can I train my slug to do?
- Repeating cycle of: hypothesis, design and trial, collection of evidence, analysis and reflection.
  - What does it like as reward? What will it do for a reward?
- No single correct answers